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THE

NEW WATER WEED;

ANACHARIS ALSINASTRUM.

Some account of it;

BY

WILLIAM MARSHALL, Esq.,

OF ELY, CAMBR.

Mo. Bot. Garden,
1896.

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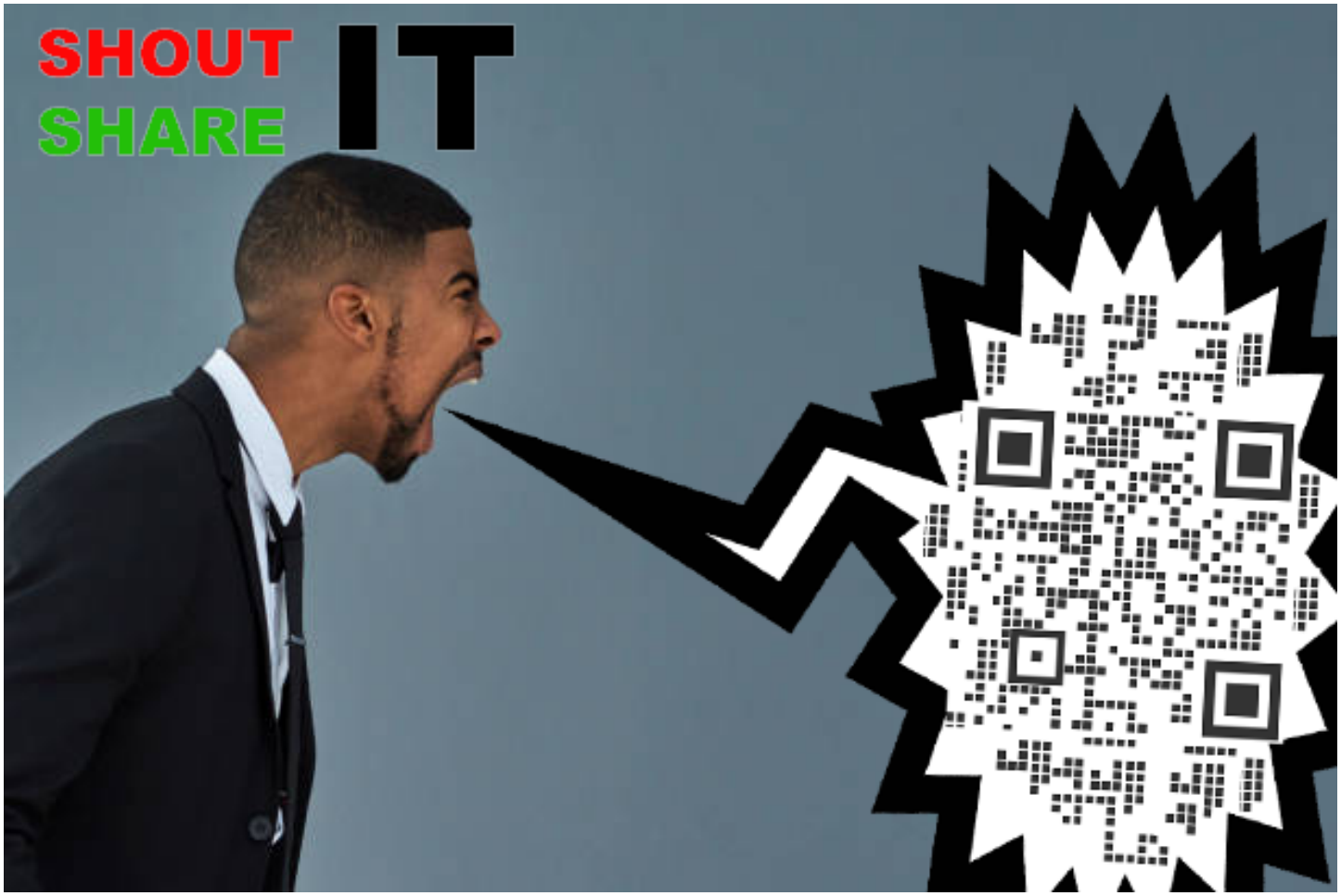
SHOUT
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IT

ANACHARIS ALSINASTRUM,

A NEW WATER WEED.

(REPRINTED FROM THE CAMBRIDGE INDEPENDENT PRESS.)

REVISED BY THE AUTHOR.

LETTER.—No. I.

SIR,

A remarkable plant has recently made its appearance in the rivers Ouse and Cam, and already abounds to such a degree, as not only to impede navigation, but what is of far more importance in this fen country, threatens to injure our drainage.

It occurs in dense tangled submerged masses of considerable extent, and is so heavy, that when cut, (instead of rising to the surface and floating down to sea, like other weeds) it sinks to the bottom. It is this property which is likely to make it injurious to drainage. The intruder is so unlike any other water plant, that it may be at once recognized by its leaves growing *in threes*, round a slender stringy stem. The watermen on the river have already named it "Water Thyme," from a *faint* general resemblance which it bears to that plant.

That it is *new* to our rivers here, is certain; watermen and fishermen pronounce it to be, (as I heard one of them call it the other day), "a furreigner."

Who the stranger is, whence he came, and how he got here, are questions of considerable *scientific* interest; but by what means he is to be got rid of, is the *practical* question. With your permission I will discuss these points in another communication.

Yours obediently,

Ely, August 11, 1852. W. MARSHALL.

P.S.—As I am anxious to know how far the plant has spread itself through the rivers of the Eastern Counties, if any of your readers residing in the Middle Level, or on the banks of any of the tributaries of the Ouse, would favour me with their experience, I should be greatly obliged.

No. II.

SIR,

I now trouble you with the second part of my communication on the subject of this new Water Weed, in which I promised to discuss, who the stranger is—whence he came—how he got here—and, by what means he is to be got rid of?

With respect to the first question it is sufficient to say, that it is the "*Anacharis Alsinastrum*" of your eminent townsman, Mr. C. C. BABINGTON (to whose accurate labors our indigenous botany is so much indebted), who so named it in 1848.

The following is a short account of what we know of the plant:—

It appears that it was *first* found in this country on the 3rd August, 1842, by Dr. GEORGE JOHNSTON, of Berwick-on-Tweed, in the lake of Dunse Castle, in Berwickshire. The lake is situated upon a tributary of the Whiteadder River, which flows into the Tweed. Specimens were sent at the time to Mr. BABINGTON; but the discovery was lost

sight of, and the interest in it died away until the Autumn of 1847, when it was again discovered by MISS KIRBY, of Lubbenham Lodge, in reservoirs adjoining the Foxton Locks, on the Canal near Market Harborough, in Leicestershire. The plants were all *females*, and were found in considerable abundance, growing "closely matted together." MISS KIRBY had not observed it there before, and the reservoirs had been cleaned out two years previously.

MISS KIRBY'S re-discovery awakened the attention of Botanists to the subject, and Mr. BABINGTON published a description of the plant in the "Annals of Natural History," for February, 1848. Dr. JOHNSTON, the first discoverer, on reading Mr. BABINGTON'S account, at once recognized it as the plant he had found in the Loch of Dunse Castle, and in the following Autumn found the plant in two stations in the Whiteadder River.

The same season, but later, it was found by Mr. JAMES MITCHEL, in *Nottinghamshire*, in the Lene, (a tributary of the Trent) near Nottingham, "growing in great profusion for about a quarter of a mile in extent." In November, of the same year, it was found in *Northamptonshire*, in the Watford Locks, by Mr. KIRK, "very abundant." The Watford Locks are on the same line of Canal as the Foxton reservoirs. Mr. KIRK observed that when water was drawn from either of the Locks, the force of the current detached small sprigs of the Anacharis, which were carried into the body of the Canal. Mr. KIRK considered it to be an *introduced* plant. His plants were also all *females*. Subsequently, Mr. KIRK changed his views, and regarded the plant, "from its simultaneous discovery in so many other localities," as a true native. He also described it as growing in such dense masses, that it was with difficulty good sized specimens could be detached, owing to its extreme brittleness. Mr. KIRK was informed by the Lock-man that the plant was quite as

abundant when he first came to the Locks, five years before, although the reservoirs had been cleaned out once or twice during that period. The Lock-man further stated, that he had formerly resided at the Foxton Locks, and that the reservoirs there, were "full of it more than twenty years back," also that it had been plentiful in the Market Harborough Canal, during the whole of that period. A short time after this conversation took place, two labourers belonging to the Locks came up, and both of them confirmed the statement of its being plentiful in the Market Harborough Canal, and one of them added: that the "Welford Branch," a narrow Canal, comparatively little used, was so full of it, that "the passage of boats was impeded, and the Canal necessitated to be cleared out once or twice à year, and that it had been so for many years." I apprehend however, there must be some mistake here.

In August, 1849, it was found in *Derbyshire* and *Staffordshire*, by Mr. EDWIN BROWN, growing "in profusion," in the Trent, near Burton-on-Trent, and also in the Canal there. Mr. BROWN was convinced that the plant was *new* to that locality. He describes it as forming "very large submerged masses, of a striking appearance." All the flowers were *females*. In Christmas, 1850, it was found by Mr. KIRK in *Warwickshire*, near Rugby, "in the greatest abundance;" and in July, 1851, by the same gentleman, in the Oxford Canal near Wyken Colliery.

The Rev. W. M. HIND, writing from Burton-on-Trent, in July, 1851, describes the plant as occupying a much larger portion of the river than when first noticed, eighteen months before, and adds: "in fact, it bids fair in a short time to block up one of the two streams into which the Trent here divides."

Last year (1851), the Anacharis was noticed by myself and others in the river at Ely, but not in great quantities.

This year it has increased so much that the river may be said to be full of it; but I must defer a more particular account of its *behaviour* in the Cam and Ouse till next week, when, if space permit, I will dispose of the remaining questions of whence it came, how it got here, and by what means it is to be got rid of.

Yours obediently,

Ely, August 18, 1852. W. MARSHALL.

No. III.

SIR,

Having in my last, traced this plant from its first discovery in Berwickshire in 1842, down to its recent appearance in the Cam and Ouse, I propose to devote this letter to a particular account of its *behaviour* in *our own* rivers, believing the chief interest connected with it, to lie in this direction.

I have already described the Weed as growing in dense submerged masses, distinguishable at once from all others by its "leaves growing in threes round a slender stringy stem;" and although this brief description is amply sufficient to identify the troublesome pest, a short further account of its appearance and habits may not be uninteresting. The colour of the plant is a deep green; the leaves are about half an inch long, by an eighth wide, egg-shaped at the point, and *beset with minute teeth, which cause them to cling.* The stems are *very brittle,* so that whenever the plant is disturbed, fragments are broken off. Although, at present, it cannot propagate itself by seed, its powers of increase are prodigious, as every fragment is capable of becoming an independent plant, producing roots and stems, and extending itself indefinitely in every direction. Most of our water plants require, in order to their increase, to be rooted in the bottom or sides of the river or drain in which they are

found; but *this* is independent altogether of that condition, and *actually grows as it travels* slowly down the stream, *after being cut*. The specific gravity of it is so nearly that of water, that it is more disposed to sink than float, and the cut masses may be seen under water, either on or near the bottom, rolling over and over like woolpacks, clinging to every thing they meet with, and accumulating in great quantities at locks and bridges (hugging the piers of the latter), and grounding in shoal water. Its mode of growth may be best seen in still and narrow waters, (such as the stream above the mills at Cambridge), where it seems to spring first from the two sides and bottom, meeting at length in the middle, and completely filling up the watercourse, as I have seen in some cases, almost to the exclusion of the water. Except in very quiet places it is not likely to be found in flower. I have, however, found it flowering in great profusion just below Ely; but as the plant is *diœcious, (i.e.* producing male and female flowers on *separate* individuals), there is no fear, as I have before remarked, of its producing seeds in this country, all the specimens hitherto found being of one sex only.

Although there is little doubt that in 1850, and, perhaps in 1849, it might have been detected in our rivers, if diligently sought for, it does not appear to have attracted the notice of Watermen and the staff of Fen Officials, whose duty it is to cut the weeds in the summer time, till last year, when it was noticed in considerable quantities all the way from Small Bridges down to Bottisham Lock, but not to one-third its present extent. I have been informed however, that even last year it was raked out of the river near Waterbeach and Ditton, and carted away for manure. At the present time, it needs no longer to be sought for, it may be found everywhere, in more or less quantity, from Cambridge downwards, choking up the mouths of docks, sluices, and

narrow watercourses, and in the upper portions of the river, impeding both navigation and drainage. Perhaps its wonderful and rapid increase this year may be owing to the excess of wet, and the long continuance of hot weather raising the temperature of the water to an unusual degree; but if it should continue to increase in anything like the same ratio as it has done, the upper parts of our rivers will no longer be able to pass their waters to sea, and the Navigation Interest may surrender to the Railways what little remains to them of the carrying trade.

That it is already a source of annoyance to our *Watermen* is evident by the universal complaints which have been made of the obstructed state of the River Cam. I am told that the river at the backs of the Colleges has been so blocked, that extra horses had to be yoked on, before barges could be got up to Fosters' Mills.

Sluicekeepers also complain that masses of it get into the pen, and when the slackers are drawn, the openings are choked, and the operation of letting boats through is greatly impeded.

The Railway *Dock* at Ely, became so choked with the weed that boats could not enter until several tons of it had been lifted out. At Roswell Hill Pits, below Ely, the entrance docking was blocked, so that the gault boats could not get in till it was removed. (It was here where I found it in flower).

Rowers, too, find it interferes with their amusements; and *Swimmers* remark, that it clings to them like "scratchweed," and that if they are overtaken by a lump of it, they are likely to be entangled and dragged by it into deep water.*

Even the *Fishermen* complain that they can no longer ply their nets so freely as they were wont; and I am informed,

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* A correspondent of the Cambridge Chronicle remarks, that the weed will upset a "funny" first, and then prevent the rower from swimming to land.

on good authority, that they have discontinued setting their hook-lines, (*i. e.* lines laid across the river with a series of hooks attached), because the "new weed" either carries them away bodily, or strips them both of their baits and fish.*

Lastly, the *Drainage* is impeded. Mr. HUMAN, Sen., our experienced officer, informs me that although the waters this season have been run off at Denver Sluice *a foot lower* than in previous years, the average height of the water in the river below Cambridge has been *a foot higher* than in ordinary seasons; and he refers *at least half this difference* to the obstructions occasioned by the presence of the "Anacharis."

From these facts I apprehend your readers will by this time have arrived at the conclusion that a troublesome stranger has intruded himself among us, uninvited, but, *whence he came—how he got here—and by what means he is to be got rid of*—will furnish ample materials for another letter.

Yours obediently,

Ely, August 24th, 1852. W. MARSHALL.

No. IV.

SIR,

If you were some fine morning to find that a strange person, of foreign aspect had intruded himself into your house, I imagine the questions which would most naturally occur to your mind under such circumstances would be: whence came the fellow—how did he get here—and how am I to get rid of him? But as no one is presumed to know the faces of all his neighbours, you would wish, doubtless, before accosting him as an "impertinent foreigner," to make sure he was not some obscure native of one of the back

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* The Rev. A. BLOXAM informs me that the increase of the weed within the last few years, has been such as entirely to prevent the use of nets in the Trent, between Repton, and Castle Donnington.

streets of your own town. So in the case of our present unwelcome visitor, before one can ask the question—whence he came? we ought to be satisfied that he really *is* a stranger. Now, some botanists seem to think that he has all along been a native of these islands, but has "made himself so scarce" as not to have been previously recognized by our Botanical Detective Force;* while others pronounce him an unmistakeable foreigner—greedy and rapacious, "fixin" himself in John Bull's rivers for all the world as if he had as good a right to occupy them as the aborigines themselves. For my own part I have no sort of doubt upon the subject: I hold with the watermen that he is a veritable "foreigner," although I find that the Rev. Mr. BLOXAM, who had visited its place of growth, said in 1848, "he could find no reason to doubt its being a true native;" and Mr. KIRK, who first regarded it as introduced, afterwards changed his views, and concluded it must be indigenous, "from its simultaneous appearance in so many localities."† Whatever Mr. BLOXAM's reasons were for his opinion, Mr. BABINGTON appears to have agreed with him *at that time*. If, however, Mr. BLOXAM thought so, only because "numbers of other water-plants grew in the same locality," the reasoning is very unsatisfactory, seeing that *any* introduced water-plant must *necessarily* be found in company with other water-plants. The other argument derived from its "simultaneous appearance in so many localities," loses much of its force, when the numerous localities come to be reduced, as I shall hereafter shew, to one, or at most two. I have already stated that the plant was *first* found in 1842, in the Lock at Dunse Castle.

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* The plant is so unlike any of our British water-plants, that it could not possibly have been overlooked. There is but one plant, the "*Potamogeton densum*," that could ever be mistaken for it, and this only by the most superficial observer.

† I have since ascertained that Mr. BLOXAM's "opinion has long been changed as regards its being a native," but that Mr. KIRK still "most decidedly considers it indigenous."

Now at first sight one would suppose a quiet Lake in Scotland beyond the reach of sophistication; but Dr. JOHNSTON informs me that *aquatic plants have been introduced into that piece of water from the south.* Here then we have evidence of the *probability* of the *Anacharis* being an introduced plant at Dunse. Then we learn that, six years after, it was found in the Whiteadder, between the Lock at Dunse and the sea; and now in August, 1852, Dr. JOHNSTON writes to me thus: "As with you, so with us, the weed is *altering the character* of the Whiteadder, and will require before long to be dealt with as we have dealt with savages in some places." Its *second* discovery was in the Foxton Locks, situate on the Union Canal, which connects Market Harborough with Leicester, and the river Welland with the Soar and (through the Soar) with the Trent. When therefore it was found in the Lene, near Nottingham, it should be remembered that it was in a *part of the same water system.* Afterwards, it was found in the Locks at Welford and Watford, near Northampton; but these points are within a very short distance of each other, and both are on the *same line of canal* as the Foxton Reservoir. In 1849, it was found in the canal near Burton-on-Trent, and in the Trent River; but these points, although in two new counties, were all *in water communication with the previous stations*; and again, when it was found in Warwickshire, near Rugby, and in the Oxford canal, these are within ten or twelve miles of the Watford Station, and *on the same line of canal.* These several Midland localities may therefore be regarded *virtually as but one,* because the Anacharis, when once introduced, would, in a few years, inoculate any connected water system from one end to the other.*

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* I do not deem it necessary to refer to the Sussex and Yorkshire stations, because it is admitted that in these places the weed has certainly been introduced.

Indeed, if any one will take the trouble to look at a good map of England, it will appear clear that there was hardly a spot so well calculated as a centre from which to inoculate our English rivers, as Rugby or the Watford Locks, near the Crick Railway Station. From such a point, situate at an altitude above the sea of about 350-feet, and very nearly at the line of watershed which divides England into the River Basins of the Severn on the west; the Trent on the north; the Ouse on the east; and the Thames on the south; a few detached sprigs travelling different ways, would enter the *Severn* through the Avon *via* Rugby and Warwick; the *Thames*, through the Cherwell at Banbury, and thence by Oxford; the *Nene*, above Northampton; the *Ouse* at Buckingham; the *Welland*, at Market Harborough; the *Trent*, above Burton, by the Anker and Tame; and again, lower down at Nottingham by the Soar; and from Nottingham the *Witham* could be reached by the Grantham canal, and from thence by Lincoln, the Drains of North Lincolnshire would be impregnated. And then, when the pest had travelled as far down (on the Trent, for example) as the top of the Humber), the numerous vessels ascending the Great Valley of 4,000 square miles, drained by the Yorkshire Ouse, would carry it up with them, and so inoculate that ample river and its numerous tributaries.

That the plant is *only now descending* these rivers is evident. It has appeared in the upper part of the Ouse, and for four years has been observed in the Nene; two years ago it appeared at Lincoln, but had not then reached the northern parts of that country, and in our own river, while it occupies the line of descent from Cambridge to the sea, the "Old West" river and the "Lark" are, *as yet*, free of it, except just above their confluences. Looking at these facts, I would ask, if it be a native, how is it that it has never exhibited its extraordinary powers of increase till now? For if it be

not new, we must suppose that a *new* property has recently been imparted to it, which is absurd; and what better proof of its newness can be offered than by the facts made patent, that it is *only now* in the act of descending our rivers. To my mind, the evidence is conclusive that it is a foreign importation, and it is only when we are satisfied on that point that we can properly discuss the question of *whence came it?*

Now this is a point on which no *ex cathedra* dictum can at present be pronounced. The question can only be settled by a careful comparison of our plant with its congeners in other countries. It appears, however, that plants of the genus "Anacharis" are confined to the American continent, and that one plant, called "Anacharis Nuttalli," or "Udora Canadensis," very closely resembling, if not identical with ours, is found in the American rivers. Dr. JOHNSTON has specimens from Dr. MACLAGAN, gathered in Detroit River, which exactly resembled his Berwickshire plant, save only a slight difference in the outline of the leaves.

The American plant is frequent in the rivers from Canada to Virginia. I think, therefore, we may safely answer the question of "whence it came," by saying, "From North America."*

But, then, *how did he get here?* Now there are various ways in which a plant may be imported. A Botanist, in the ardour of that Botanical instinct which prompts him to surround himself with as many as possible of the beautiful and varied forms of vegetable life, might have introduced it; but we have no evidence that such has been the case, although Botanists have been known to do such things. If one might hazard a conjecture, I should say that it was most likely introduced at or about Rugby, with American timber, during

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* I observe a correspondent of the *Stamford Mercury*, signing himself "Caledoniensis," affirms that the plant is an importation from Norway; but as it does not appear that it is found in Norway, or indeed anywhere in Northern Europe, I cannot subscribe to his assertion.

the execution of some of the numerous railways which meet at that point. We know that in North America the timber is floated in rafts down the rivers, in which case fragments of the American weed would cling to it, or seeds might find their way into the clefts of the wood, and if *but one* seed, or *one* fragment retained its vitality, in some moist cranny, till it reached its final destination, I verily believe it would be sufficient to account for the myriads of individuals that now exist in England. Indeed, from the circumstance of all the plants hitherto found being *of one sex*, the hypothesis of its propagation from a *single* seed or fragment is rendered more probable than by supposing a number of seeds or fragments to have been imported.

But some one will be asking, as the plant could not have found its way by water from Rugby or Watford to Cambridge, *how came it in the Cam?* This question through the kindness of Mr. BABINGTON, I am enabled to answer distinctly. In 1847, a specimen from the Foxton Locks was planted in a tub in the Cambridge Botanical Garden, and in 1848, the late Mr. MURRAY, the curator, placed a piece of it in the Conduit stream, that passes by the new garden. In the following year, on Mr. BABINGTON asking what had become of the stick which marked the site of the plant, he was informed that it had spread all over the ditch. From this point it doubtless escaped by the waste pipe across the Trumpington Road, into the "Vicar's Brook," and from thence into the river, above the Mills, where it is now found in the greatest profusion. In the case of the Cam, then, we see it *proved to demonstration* that the short space of four years has been sufficient for *one small piece* of the "Anacharis" to multiply so as to impede both navigation and drainage. When PROFESSOR GRAY, of Boston, U.S., was at Cambridge, Mr. BABINGTON mentioned the circumstances to him, at which he expressed surprise, as the Anacharis is not found

to spread in this active manner in America. Perhaps our sluggish streams, the decomposing vegetable and animal matters in our Cambridge waters, and especially the excess of lime present, (15 to 17 grains in the gallon), furnishing an inexhaustable supply of *inorganic* food, may account for its more rapid increase here than in America.

Lastly: with respect to the question,—*How is it to be got rid of?* I think we may answer it at once by an emphatic "NOT AT ALL." Like the imported European horses and oxen in the South American Pampas, or CAPT. COOK'S pigs in New Zealand, or the Norway rat in our own farm yards, or the Oriental black beetle in London kitchens, or (more remarkable still) like the exotic mollusk (the Dreissena Polymorpha), which has now spread itself through the canals of this country, we may conclude it has fairly established itself amongst us, *never to be eradicated.* All we shall be able to do is to try and keep it down, and in order to effect this, it should not be left in the rivers after being cut, in the hope of its finding its way to sea; but be *raked out at once* upon the shores; and Commissioners of Drainage should *beware of letting fresh water into their districts,* for the weed will inevitably enter with it, and blockade the ditches.

In conclusion, Mr. Editor, you must allow me to remark (while warmly thanking you for your courtesy in affording me so much space in your valuable journal), that I should never have obtruded myself on the public if I did not recognize in the introduction of this "New Water Weed" beyond the mere scientific question, considerations of much local and economical importance to this Fen country.

Yours obediently,

Ely, August 30*th*, 1852. W. MARSHALL.

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